FINAL

HAZARDOUS BUILDING MATERIALS ASSESSMENT
CARTWRIGHT FIELD OFFICE
DFRP# 56215
5 POINT ROAD, CARTWRIGHT,
NEWFOUNDLAND AND LABRADOR

Submitted to:

Public Services and Procurement Canada

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EXECUTIVE SUMMARY

Wood Environment & Infrastructure Solutions, a division of Wood Canada Limited (Wood), was retained by Public Services and Procurement Canada (PSPC), on behalf of Fisheries and Oceans Canada (DFO), to conduct a Hazardous Building Materials Assessment (HBMA) at the Cartwright Field Office site, located at 5 Point Road, Cartwright, Newfoundland and Labrador (NL), herein referred to as the "site". The purpose of the project was to assess potential hazardous building materials within the site buildings. The identification of hazardous materials was required to assist DFO in determining the likelihood of worker exposure to these materials during renovation and maintenance activities.

The Cartwright Field Office site is located on the south side of Point Road, approximately 20 m southeast of Cartwright Harbour. The site is accessed by vehicle via Point Road. The site is currently under the management of DFO and contains an Office Trailer.

Results of the asbestos sampling and analytical program revealed the following:

- Building materials containing greater than 1% asbestos by dry weight, which are considered to be asbestos containing materials (ACMs), are present in the form of vinyl sheet flooring inside the Office Trailer.

Vinyl sheet flooring was observed throughout the Office Trailer at the time of the site visit. The condition of the flooring ranged from good to poor.

Potential ACMs were observed (or suspected to be present) and were not sampled due to the nature of the materials and/or hazards associated with sampling these materials. These materials included, but are not limited to:

- Electrical and mechanical components and insulators such as wiring and gaskets.
- Piping/pipe joint sealants.
- Incandescent light heat shields.

Results of the paint sampling and analytical program revealed the following:

- Lead in Paint
    - Concentrations of lead in the three paint samples analyzed, including the duplicate sample, ranged from non-detect (<15 mg/kg) to 6,730 mg/kg.
    - Concentrations of lead in one paint sample, as well as the duplicate sample, exceeded the Federal Hazardous Products Act (HPA) criterion of 90 mg/kg. Additionally, the concentration of lead in the duplicate paint sample (CA-PS-DUP1) exceeded the Former Federal HPA criterion of 5,000 mg/kg.
    - The concentration of lead leachate in paint sample CA-PS-DUP1 was below the applicable guideline for leachable lead in paint.

- Mercury in Paint
  - Concentrations of paint in the three paint samples analyzed, including the duplicate sample, ranged from 0.09 mg/kg to 4.39 mg/kg, below the Federal HPA criterion of 10 mg/kg. Therefore, these paints are not considered to be mercury-based paints (MBPs) and are not likely to be leachable for mercury.
- PCBs in Paint
  - PCBs were not detected (<0.5 mg/kg) in the three paint samples, including the duplicate sample, collected from the Office Trailer.

The condition of the paint visible on interior and exterior surfaces of the site buildings varied from good to poor condition.

Suspected water leaks were observed in Room 1 (Porch) of the Office Trailer, and SVG (assumed to be covering an area of approximately $1m^2$) was observed on painted drywall. Existing conditions in the Office Trailer (e.g., suspected water infiltration due to leaks) may potentially contribute to or enhance mould growth inside the building.

Additional information regarding potential hazardous building materials assessed in this program are included in this report. The statements made in this Executive Summary are subject to the same limitations included in Section 8.0 (Closure) and are to be read in conjunction with the remainder of this report.

An Asbestos Management Plan (AMP) has been prepared for this site and submitted under separate cover.

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1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, a division of Wood Canada Limited (Wood), was retained by Public Services and Procurement Canada (PSPC), on behalf of Fisheries and Oceans Canada (DFO), to conduct a Hazardous Building Materials Assessment (HBMA) at the Cartwright Field Office site, located at 5 Point Road, Cartwright, Newfoundland and Labrador (NL), herein referred to as the "site". The purpose of the project was to assess potential hazardous building materials within the site buildings. The identification of hazardous materials was required to assist DFO in determining the likelihood of worker exposure to these materials during renovation and maintenance activities.

1.1 Site Description

The Cartwright Field Office site is located on the south side of Point Road, approximately 20 m southeast of Cartwright Harbour (refer to Figure 1, Appendix A). The site is accessed by vehicle via Point Road. The site is currently under the management of DFO and contains and Office Trailer (refer to Figure 2, Appendix A).

1.2 Building Description

A description of the site building is outlined in Table 1-1. Photographs of the site building are provided in Appendix B.

Table 1-1 Site Building Description – Office Trailer

Building Name	Office Trailer	Photo No. (Appendix B)
Date of Construction	1983	-
Date of Renovations	NA	-
No. of Stories	1	1 to 3
Attic (Yes/No)	No	-
Basement (Yes/No)	No	-
Type of Structure	Wood Frame	21
Type of Foundation	Mobile Trailer, Plywood Skirting	4
Exterior	Vinyl Siding	1 to 3
Window/Door Frames	Vinyl Windows	2
	Painted Metal Door Frames	1, 10
	Painted Wooden Frames	22
Exterior Doors	Painted Metal	10
Roofing Materials	Asphalt Shingles	1
Interior Walls Finishes	Painted Drywall	5 to 8
Ceiling Finishes	Painted Drywall	6, 22
Floor Finishes	Vinyl Tile and Vinyl Sheet Flooring	12, 13, 15 to 18
Interior Doors	Painted Wood	7, 8
Interior Lighting	Fluorescent/ LED, Incandescent	6, 22
Exterior Lighting	HID	21
Heating	Electric Baseboard Heaters	-

1.3 Background

According to documentation provided by DFO, the Office Trailer was constructed in 1983. It is unknown whether the site had been developed prior to the installation of the Office Trailer. A storage shed was also previously located on the site, but has since been removed.

No previous HBMA reports were provided to Wood for review.

1.4 Objectives

The objectives of the HBMA were to determine if hazardous building materials are present in the site buildings and to identify the condition of these materials.

1.5 Scope of Work

The scope of work for the HBMA, as per Wood Proposal No. P4922 (Proposal for Professional Consulting Services, Hazardous Building Material Assessments and Asbestos Management Plans, Four DFO Real Property Sites, Newfoundland and Labrador), included:

- Preparing a site-specific Health and Safety Plan (HASP) and submitting the plan to PSPC.
- Conducting a site reconnaissance to visually inspect potential hazardous building materials within the site buildings, including:
  - Asbestos containing materials (ACMs);
  - Lead-based paint (LBP) and other lead-containing materials or equipment;
  - Mercury-based paint (MBP) and other mercury-containing materials or equipment;
  - Polychlorinated biphenyl (PCB) based paint and other PCB-containing materials;
  - Sources of ozone depleting substances (ODS); and
  - Other potentially hazardous building materials and equipment.
- Inspecting the site buildings for evidence of areas that are impacted by suspected visible mould growth (SVG), and if observed, sampling and laboratory testing of suspected mould growth to confirm the presence or absence of mould.
- Sampling and laboratory testing of suspected ACMs to confirm the presence or absence of asbestos fibres.
- Sampling and laboratory testing of caulking (or other bulk materials) to determine the concentrations of PCBs.
- Sampling and laboratory testing of paint to determine the concentrations of lead, mercury and PCBs.
- Leachate analysis of lead and mercury using the Toxicity Characteristic Leaching Procedure (TCLP) in order to assess whether the paint samples are leachable, if required, and the paint finishes are in poor condition (i.e., peeling and flaking) and the quantity of paint required for testing is readily available.
- Inspecting thermostats to assess the presence or absence of mercury-containing switches.
- Documenting the location of any ODS and Federal Halocarbons identified during the assessment.

- Preparing a written report documenting the methodologies and findings of the HBMA.
- Developing and preparing a written Asbestos Management Plan (AMP), if required, using relevant information obtained during the HBMA.

The work was carried out using commercially reasonable best efforts consistent with the level and skill ordinarily exercised by members of the profession currently practicing under similar conditions. The assessment was completed on a "room-by-room" basis. The findings are limited by the availability of information at the time of the assessment and lack of accessibility or confined areas within the site buildings. It is possible that materials exist that could not be reasonably identified within the scope of the work or were not apparent or accessible during the site visit. A more detailed and destructive sampling program to further investigate concealed ACMs is recommended prior to any demolition or extensive renovation activities.

It is noted that the scope of work for the HBMA did not consist of the following:

- Sampling and laboratory testing of paint from surfaces that have been recently painted (as confirmed by site representative) and appear to be in good condition.
- Sampling and laboratory testing of treated timber materials to determine the concentrations of "pressure treated" inorganic preservatives, creosote or chlorophenolic formulations using the TCLP.
- Inspecting accessible fluorescent lights for PCB-containing light ballasts and sampling and laboratory testing of suspected PCB-containing electrical equipment.
- Performing intrusive cavity inspections to attempt to identify any hidden and potentially hazardous building materials that may be concealed by walls and/or ceiling systems.
- Sampling and laboratory testing of suspected insulation of concern to determine the presence or absence of UFFI.

2.0 ENVIRONMENTAL REGULATORY FRAMEWORK

The federal and provincial governments in Canada have prepared and/or adopted numerous acts, regulations, guidelines, policies, and procedures related to the protection of the environment and the investigation of sites containing hazardous building materials. Wood has considered the following documents in conducting the HBMA:

- Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CEQG)
  - Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health
- Canadian Environmental Protection Act (1999, C. 33)
  - PCB Waste Export Regulations (SOR/97-109)
  - Ozone-depleting Substances Regulations and Halocarbon Alternatives Regulations (SOR/2016-137)
  - PCB Regulations (SOR/2008-273)
  - Regulations Amending the PCB Regulations (SOR/2010-57)
  - Interprovincial Movement of Hazardous Waste Regulations (SOR/2002-301)
  - Federal Halocarbon Regulations (SOR/2003-289)
  - Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149)
  - Products Containing Mercury Regulations (SOR/2014-254)
- Federal Hazardous Products Act (R.S.C., 1985, c. H-3)
  - Surface Coating Materials Regulations (SOR/2016-193)
- Federal Transportation of Dangerous Goods Act (1992, c. 34)
  - Transportation of Dangerous Goods Regulations (SOR/2012-245)
- Health Canada Guidelines for Canadian Drinking Water Quality (Summary Table, 2017)
- National Plumbing Code of Canada (National Research Council Canada)
- NL Environmental Protection Act (SNL2002 E-14.2; Amended: 2004 cL-3.1 s28; 2006 c12; 2006 c32; 2013 c16 s25)
  - Storage of PCB Wastes Regulations (61/03)
  - Halocarbon Regulations (41/05)
- NL Dangerous Goods Transportation Act (RSNL1990 Chapter D-1; Amended: 1995 cP-31.1 s53; 1997 c13 s13; 2004 c36 s9; 2006 c40 s21; 2013 c16 s25)
  - Dangerous Goods Transportation Regulations (5/96)
- NL Department of Environment, Pollution Prevention Division, Guidance Document: Leachable Toxic Waste, Testing and Disposal (2003, GD-PPD-26.1)
- NL Department of Environment and Conservation, Guidance Document for the Management of Impacted Sites (2014, Version 2.0)

- NL Occupational Health and Safety Act (RSNL1990 Chapter O-3; Amended: 1992 c29 s24; 1992 c42; 1996 cP-41.01 s37; 1997 c13 s49; 1998 c19 s20; 1999 c28; 2001 c10; 2004 c36 s27; 2004 c47 s27; 2004 c52; 2006 c16; 2009 c19; 2012 c38 s11; 2013 c16 s25)
  - Occupational Health and Safety Regulations (5/12)
  - Asbestos Abatement Regulations (111/98)

2.1 Selection of Guidelines/Standards

The following sections present the guidelines and standards that were used to evaluate analytical results for samples of suspected hazardous materials collected during this assessment.

2.1.1 Asbestos Containing Materials (ACMs)

Analytical results for asbestos in building materials were compared to the NL Asbestos Abatement Regulations (111/98) under the Occupational Health and Safety Act. Under these regulations, materials containing greater than 1% asbestos by dry weight are considered ACMs and should be managed in accordance with the applicable regulations. However, it should be considered that in the event that asbestos is detected in a sample, while it is not a regulated ACM, it remains subject to control measures under the Occupational Health and Safety Regulations.

2.1.2 Lead in Paint

Analytical results for lead in paint were compared to the current and former Federal Hazardous Products Act (HPA) criteria of 90 mg/kg and 5,000 mg/kg, respectively. Under the HPA, the lead content limit was reduced from 5,000 mg/kg to 600 mg/kg in 2005 for surface coating materials used in or around the home or other premises where children may become exposed. In 2010, the lead content limit was further reduced from 600 mg/kg to 90 mg/kg. However, it should be considered that in the event that lead is detected in a sample at a concentration less than 90 mg/kg, while it is not considered a LBP under the Federal HPA, it remains subject to control measures under the Occupational Health and Safety Regulations.

In order to determine disposal options, should disposal be required, the former Federal HPA criterion of 5,000 mg/kg lead in paint is typically used as a Provincial disposal guideline to determine whether or not paint samples would be submitted for leachate analysis. Paint samples that contain less than 5,000 mg/kg are not likely to be leachable and therefore may be disposed of at an approved landfill facility, pending landfill and Provincial regulatory approval. Paint samples with lead concentrations in excess of 5,000 mg/kg should be subjected to leachability testing. The NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1) guideline of 5.00 mg/L lead should be used to assess the results of the leachability testing to determine disposal options for any lead-containing paint to be removed during any disturbance, demolition or renovation activities.

2.1.3 Mercury in Paint

Analytical results for mercury in paint were compared to the Federal HPA criterion. The maximum acceptable concentration of mercury in paint, under the HPA, is 0.001% (equivalent to 10 mg/kg) in or around the home or other premises where children or pregnant women may become exposed.

In order to determine disposal options, should disposal be required, the CCME CSQG of 50 mg/kg for mercury in soil at an industrial site is typically used as a Provincial disposal guideline to determine whether or not the paint samples would be submitted for leachate analysis. Paint samples with a mercury concentration of less than 50 mg/kg are not likely to be leachable and therefore may be disposed of at an approved landfill facility, pending landfill and Provincial regulatory approval. Paint samples with a mercury concentration exceeding 50 mg/kg should be subjected to leachability testing. The NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1) guideline of 0.10 mg/L mercury should be used to assess the results of the leachability testing to determine disposal options for any mercury-containing paint to be removed during any disturbance, demolition or renovation activities.

2.1.4 PCBs in Paint and Caulking

Analytical results for PCBs in paint and caulking were compared to the CCME CSQG of 33 mg/kg for PCBs in soil at an industrial site. The Federal HPA does not include any assessment criteria for PCBs in paint.

In order to determine disposal options, should disposal be required, concentrations of PCBs in paint and caulking were compared to the criterion of 50 mg/kg for PCB solid provided in the NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1) and the Federal Transportation of Dangerous Goods (TDG) Regulations. Any paints or caulking that require disposal and exceed the PCB solid criterion must be disposed of at an approved hazardous waste disposal site and not a landfill disposal site.

2.1.5 Mould

There are currently no regulations specifically covering exposure to mould and/or mould remediation practices in Canada. In addition, there are no occupational exposure limits that define acceptable levels of mould exposure without adverse health effects. However, Sections 4 and 42 of the NL Occupational Health and Safety Act and Regulations, respectively, states that an employer shall ensure, where it is reasonably practicable, the health, safety and welfare of his or her workers and that an employer shall monitor the use or presence of substances at the workplace that may be hazardous to the health and safety of workers. This includes exposure to moulds and other biological matter. Two Canadian guidelines have been published that outline mould abatement. These documents were published by the Canadian Construction Association (CCA) and the Environmental Abatement Council of Ontario (EACO). Since there are no clear regulatory limits for determining an acceptable exposure limit to moulds, there is no numerical guideline for determining safe or unsafe concentrations of surface mould growth. Therefore, interpretation of sampling results is subjective. The guidelines listed below were used to evaluate the visual assessment for mould:

- "Mould Guidelines for the Canadian Construction Industry." CCA, 2004.
- "EACO Mould Abatement Guidelines, Edition 3." EACO, 2015.

3.0 METHODOLOGY

The site inspection and sampling for the HBMA were conducted by Wood personnel on September 30, 2018. The site was accessed by car via Point Road. Wood personnel were not accompanied during the site visit.

3.1 Bulk Material Sampling and Laboratory Analytical Program

Building materials suspected of containing asbestos were sampled by removing a 2.0 cm by 2.0 cm piece of material (where possible) and placing the sampled materials into Glad® or Ziploc® plastic bags. New latex or nitrile gloves were worn for each sampling location. A description of the material was noted for each sampling location.

Bulk material samples suspected of containing asbestos were submitted to the EMSL Analytical Inc. (EMSL) laboratory located in Mississauga, Ontario (ON) for the analysis of asbestos using Polarized Light Microscopy (PLM) with dispersion staining. The analysis was conducted in accordance with the United States Environmental Protection Agency (USEPA) Method EPA 600/R-93/116 (Method for the Determination of Asbestos in Bulk Building Materials). EMSL is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) and the American Industrial Hygiene Association (AIHA) for bulk asbestos fibre analysis by PLM.

3.2 Paint Sampling and Laboratory Analytical Program

Paint samples were collected from painted surfaces by cutting and scraping areas of flaking paint using clean knives and scrapers or by cutting out a small section of the painted substrate (e.g., wood, aspenite, etc.). If a portion of the substrate was unable to be removed, paint samples were collected down to the bare substrate (e.g., concrete). A minimum of five grams (where possible) of paint was obtained from each sampling location and the samples were placed into Glad® or Ziploc® plastic bags. New latex or nitrile gloves were worn for each sampling location. A description of the paint and substrate was noted for each sampling location.

Paint samples were submitted to the AGAT Laboratories facility (AGAT) in Dartmouth, Nova Scotia (NS) for the analysis of lead, mercury, and PCB content. The metals analysis was conducted in accordance with the EPA 6020A, method analysis for metals using inductively coupled plasma – mass spectrometry (ICP-MS). The PCB analysis was conducted in accordance with the EPA 8082 method analysis. AGAT is accredited under the Standards Council of Canada (SCC) to perform analysis of metals and PCBs in paint samples.

3.3 Inspection and Sampling of Suspected Visible Mould Growth (SVG)

Mould spores are present in all indoor environments and cannot be completely eliminated. Cellulose based building materials provide a nutrient base for many mould species; however, mould cannot grow unless an adequate amount of excess moisture is present.

The focus of the visual inspection included, but was not limited to, searching for visible signs of water staining, water damage, excess moisture, and/or infiltration; and signs of SVG and/or staining. In this report, the term SVG refers to a smearable discoloration of surfaces differing from that of the natural

substrate with observable fungal characteristics based on Wood's experience evaluating similar building types.

3.4 Inspection of Thermostats for Mercury-Containing Switches

Thermostats identified within the site building were visually inspected by removing the casings and checking for the presence of mercury-containing switches.

3.5 Documentation of Potential Sources of ODS and Halocarbons

Ozone depleting substances (ODS) include any substances containing chlorofluorocarbon (CFC), hydrochlorofluorocarbon (HCFC), halon or any other material capable of destroying ozone in the atmosphere. ODSs have been used in rigid polyurethane foam and insulation, laminates, aerosols, air conditioners, freezers, chillers, fire extinguishers, cleaning solvents and for the sterilization of medical equipment. Federal regulations introduced in 1995 required the elimination of production and import of CFCs by January 1, 1996 (subject to certain essential uses) and a freeze on the production and import of HCFC-22 by January 1, 1996. These regulations also require the complete elimination of HCFC-22 by the year 2020. The NL Halocarbon Regulations (dated May 2005) required the elimination of halon in portable fire extinguishers effective June 1, 2005 and the elimination of halon in fire extinguishing systems by January 1, 2010. Potential sources of ODSs (if present) were documented during the HBMA.

3.6 Documentation of Other Potentially Hazardous Building Materials

Other potentially hazardous building materials (e.g., mercury in lighting devices, lead in plumbing and/or batteries, silica in cementitious building materials, etc.) within the site buildings (if present) were documented during the HBMA.

3.7 Quality Assurance/Quality Control (QA/QC) Program

Laboratory blanks and Quality Control (QC) standard samples were analyzed to assess the reliability of the paint analyses. In order to minimize cross contamination during sampling, a field Quality Assurance/Quality Control (QA/QC) program was followed, which included the following measures:

- Latex or nitrile gloves were worn during all sampling (new pair of gloves for each sample);
- All sampling equipment was thoroughly cleaned prior to sampling to ensure that samples were unaffected by cross-contamination from previous samples; and
- Each sample was photographed, given a unique sample ID and logged onto a chain of custody form before shipment to the laboratory.

The laboratories utilized have extensive QA/QC programs in place to ensure that reliable results are consistently obtained. Specific laboratory QA/QC measures include:

- Chain of Custody and sample integrity inspection;
- Strict documentation control and files;
- Trained personnel prepare and analyze samples according to Standard Operating Procedures (SOPs);

- All analytical methods are based on accepted procedures and are fully validated prior to use;
- Precision is monitored by performing replicate analysis of samples;
- Accuracy is verified by analyzing spiked samples and reference materials;
- Instrument calibration integrity is ensured by analyzing calibration check standards within each run sequence;
- Extensive use is made of reference material for routine procedure evaluation;
- Highest available purity analytical standards;
- Predefined analytical sequences ensure all results are traceable to calibration and QC data;
- Hard copy reports displaying all of the required data are generated for each instrument;
- Analytical results are determined only from instrument responses that fall within the calibration range;
- Acceptable QC performance must be demonstrated prior to data authorization;
- On-going method and instrument performance records are maintained for all analysis; and,
- A full-time QA Scientist evaluates the QA program on an on-going basis.

4.0 FINDINGS

The site building was constructed in 1983. It is not known whether any major renovations or upgrades have been completed on the building since construction.

Each room of the Office Trailer was assigned a specific room name and number. The designated room names and numbers are presented in Table 4-1, and graphically illustrated on the Sample Location Plan (refer to Figure 2, Appendix A).

Table 4-1 Assigned Room Names and Numbers

Room No.	Room Name	Level No.	Photo No. (Appendix B)
1	Porch	1	5
2	Main Room	1	6
3	Side Room	1	7
4	Bathroom	1	8

The findings documented in this section are based on observations made by Wood personnel at the time of the site visit and laboratory analyses of samples collected from the site building. Copies of room-by-room inspection sheets are provided in Appendix E.

4.1 Asbestos-Containing Materials (ACMs)

There are over 3,000 ACMs that are commercially available, which can be divided into two broad categories: friable and non-friable. ACMs were discontinued from use in Canada in the late 1970s/early 1980s, although non-friable asbestos is still found in many more recent buildings.

During the HBMA, 10 building material samples were collected from the Office Trailer (CA-AS-1 to CA-AS-10) and analyzed for asbestos content (refer to Photos 9 to 18, Appendix B). It should be noted that several samples were separated into sub-samples representing distinct material layers and re-labeled by the laboratory prior to analysis. Bulk sample descriptions and asbestos analytical results are summarized in Table C-1, Appendix C. Sample locations and analytical results are graphically illustrated in Figure 2, Appendix A.

4.1.1 Friable Materials

Friable ACMs are defined as materials that can be crumbled, pulverized and reduced to powder when dry using hand pressure. Typical friable materials include acoustical or decorative spray applications, fireproofing and thermal insulation.

Spray-Applied Fireproofing, Insulation and Texture Finishes

There were no spray-applied fireproofing, insulation or texture finishes observed within the site building during the site visit; therefore, no samples of these materials were collected for analysis.

Building and Thermal System Insulation

No building or thermal system insulation was observed within the site building during the site visit; therefore, no samples of these materials were collected for analysis.

4.1.2 Non-Friable and Potentially Friable Materials

Non-friable ACMs are hard or manufactured products such as floor tiles, fire blankets, pre-formed manufactured cementitious insulation and wallboards, pipes, and siding, wherein the asbestos fibres are bound to the substrate. Note that although a product may be considered non-friable when new, the product may release fine dust when disturbed (e.g., deterioration, removal, renovations) and the free dust is considered friable.

Ceiling Tile

There were no ceiling tiles observed in the site building during the site visit; therefore, no samples of ceiling tile were collected for analysis.

Plaster and Drywall Joint Compound

Two samples of drywall joint compound were collected from the Porch (CA-AS-3) and Main Room (CA-AS-6) of the Office Trailer and analyzed for asbestos content (refer to Photos 11 and 14, Appendix B).

Asbestos was not detected in the drywall joint compound samples.

Vinyl Flooring Products and Mastics

Four samples of vinyl sheet flooring (CA-AS-4, CA-AS-7, CA-AS-9 and CA-AS-10) and two samples of vinyl floor tile (CA-AS-5 and CA-AS-8) and associated mastics (where present) were collected from the Office Trailer and analyzed for asbestos content (refer to Photos 12, 13, and 15 to 18, Appendix B).

Chrysotile asbestos was detected in samples CA-AS-7 (19.7%), CA-AS-9 (17.3%), and CA-AS-10 (30.8%) at levels above the NL Asbestos Abatement Regulations (111/98) (i.e., >1%). Chrysotile asbestos (<1%) was also detected in the associated mastics (CA-AS-7-Mastic and CA-AS-9-Mastic) at levels below the applicable guideline. Asbestos was not detected in flooring samples CA-AS-4, CA-AS-5, or CA-AS-8 (refer to Table C-1, Appendix C).

Baseboard, Carpet and Stair Tread Adhesives/Mastics

No baseboards, carpets or stair treads or associated mastics were observed in the site building at the time of the site visit; therefore, no samples of these materials were collected from analysis.

Roofing Products

One sample of asphalt shingle (CA-AS-1) was collected from the roof of the Office Trailer and analyzed for asbestos content (refer to Photo 9, Appendix B).

Asbestos was not detected in the roofing material sample.

Caulking/Sealant

One sample of caulking (CA-AS-2) was collected from the Exterior of the Office Trailer and analyzed for asbestos content (refer to Photo 10, Appendix B).

Asbestos was not detected in the caulking sample.

Mortar, Grout and Other Cementitious Materials

No mortar, grout or other cementitious materials were observed at the site building during the sit visit; therefore, no samples of these materials were collected for analysis.

Fire-Rated Doors

Fire-rated doors and door frames are designed to provide a temporary fire resistance barrier and may contain asbestos. There were no fire rating labels identified on any doors and/or door frames, which typically indicate the manufacturer, rating agency and fire-rating of doors and/or door frames, observed at the site building during the site visit.

Other Potential ACMs

Other potential ACMs were observed (or suspected to be present) and were not sampled due to the nature of the materials and/or hazards associated with sampling these materials. These materials included, but are not limited to, electrical and mechanical components and insulators such as wiring and gaskets, piping/pipe joint sealants, interior heat resistant components of equipment, and sink under coating.

Other possible hidden and inaccessible ACMs have the potential to be present at the site but were not identified during the HBMA site visit. These possible ACMs could include caulking or sealants around vent pipes or other penetrations, possible fireproofing materials in the wall or ceiling cavities, other fire rated structures or building materials and underground infrastructure and piping.

4.2 Paint Additives

Lead compounds have been used in paint as pigment and durability additives since the early 1800s. Mercury compounds have been used in paint as anti-microbial additives up until the 1990s. PCBs have been used in paint as plasticizers and corrosion resistance additives from the 1950s to the 1970s.

During the HBMA site visit, two paint samples (CA-PS-1 and CA-PS-2), plus one blind field duplicate sample (CA-PS-DUP1, a duplicate of CA-PS-1), were collected from painted surfaces of the Office Trailer and analyzed for lead, mercury, and PCB content (refer to Photos 19 and 20, Appendix B). Paint sample descriptions and analytical results are summarized in Tables C-2 to C-5, Appendix C. Sample locations and analytical results are graphically illustrated in Figure 2, Appendix A.

4.2.1 Lead in Paint

Concentrations of lead in paint ranged from non-detect (<15 mg/kg) to 6,730 mg/kg (refer to Table C-2, Appendix C). Concentrations of lead in CA-PS-1, as well as the duplicate sample, exceeded the Federal HPA criterion of 90 mg/kg. Additionally, the concentration of lead in the duplicate paint sample (CA-PS-DUP1) exceeded the Former Federal HPA criterion of 5,000 mg/kg.

4.2.2 Mercury in Paint

Concentrations of mercury in paint ranged from 0.09 mg/kg to 4.39 mg/kg, and therefore, did not exceed the Federal HPA criterion of 10 mg/kg (refer to Table C-3, Appendix C).

4.2.3 PCBs in Paint

PCBs were not detected above the RDL (i.e., <0.05 mg/kg) in the paint samples analyzed (refer to Table C-4, Appendix C), and therefore, did not exceed the CCME CSQG of 33 mg/kg for PCBs at an industrial site.

4.2.4 Leachable Lead in Paint

The concentration of lead detected in paint sample CA-PS-DUP1 (6,730 mg/kg) exceeded the Former Federal HPA criterion of 5,000 mg/kg, and therefore, leachate testing was also conducted on this sample. The concentration of leachable lead detected in the sample was 0.733 mg/L, which did not exceed the Schedule II leachate criterion for lead (5.0 mg/L) provided in the NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1) (refer to Table C-5, Appendix C).

4.3 Suspected Visible Mould Growth (SVG)

Wood inspected the interior areas of the Office Trailer for visual or olfactory evidence of SVG. Suspected water leaks were observed in Room 1 (Porch) of the Office Trailer (refer to Photo 23, Appendix B). SVG was observed on painted drywall covering an area of approximately 1m^2. No samples of suspected mould were collected during the site visit.

4.4 Mercury-Containing Thermostats

Three types of thermostats were identified inside the Office Trailer during the site visit. Results of the thermostat inspection are summarized in Table 4-2.

Table 4-2 Thermostat Descriptions

Description of Thermostat	Manufacturer	Location Observed	Photo No. (Appendix B)	No. Observed	Thermostat Inspected (Yes/No)	Mercury Switch (Yes/No)
Beige, rectangular, wall mounted	Westcan	Room 2	24	1	Yes	No
Beige, rectangular, wall mounted, white face	Unknown	Room 3, Room 4	25	2	Yes	No
Beige, rectangular, wall mounted, silver face	Westcan	Room 2	26	1	No	NA

4.5 PCB-Containing Light Ballasts

Several fluorescent and/or LED light fixtures were observed inside the Office Trailer during the site visit. An inspection of fluorescent light fixtures for PCB-containing light ballasts was not included in the scope

of work for the HBMA. Insulating fluids and cooling oils in electrical equipment (i.e., transformers, fluorescent light ballasts, capacitors, etc.) often contained PCBs until around 1980. Since the Office Trailer was reportedly constructed in 1983, it is possible that the light ballasts present in the building are PCB-containing. It is important to note that it was not known at the time of the site visit if some of the light fixtures observed contained LED or fluorescent light tubes, as the casings were not removed for inspection (refer to Photo 6, Appendix B).

4.6 Potential Sources of ODS and Halocarbons

During the HBMA site visit, one chest freezer was noted in Room 2 (Main Room) of the Office Trailer. The manufacturers label was not accessible, it is therefore unknown what type of refrigerant the freezer contained and whether or not it would be considered and ODS.

4.7 Other Potentially Hazardous Building Materials or Substances

Other potentially hazardous building materials or substances identified during this assessment are presented in the following sections.

4.7.1 Lead

Lead is typically associated with plumbing solder and older pipe materials (e.g., cast iron pipe joints), as well as products such as radiation protective shielding and lead-acid batteries. Lead can also be present in steel and iron primer, industrial electrical jacketing, roof flashing and tank linings.

Since the Office Trailer was constructed in 1982, it is possible that lead solder is present in plumbing and piping in the Office Trailer, as lead solder for use in potable water distribution pipes was not banned until the late 1980's.

4.7.2 Mercury

The light tubes and bulbs in HID and fluorescent light fixtures often contain limited quantities of mercury in a powder or vapour form. Suspected fluorescent and/or LED light fixtures were observed on the interior of the Office Trailer during the site visit (refer to Photo 6, Appendix B). It is important to note that it was not known at the time of the site visit if some of the light fixtures observed contained LED or fluorescent light tubes, as the casings were not removed for inspection.

4.7.3 PCBs

According to the USEPA, PCBs may be present in caulking used in windows, door frames, masonry columns and other building materials in buildings built or renovated between 1950 and 1979. As mentioned previously, insulating fluids and cooling oils in electrical equipment (i.e., transformers, fluorescent light ballasts, capacitors, etc.) often contained PCBs until around 1980. As the site building was constructed in 1983, it is possible that caulking, light ballasts, electrical cables, transformers or other electrical equipment present in the building are PCB-containing.

4.7.4 Treated Wood Chemicals

The chemicals that are used to protect and preserve wood products from insect attack and fungal decay may pose risks to human health and the environment. Depending on the wood treatment used, treated wood may be considered a hazardous waste upon disposal. The NL Department of Environment, 2015 Guidance Document for Treated Wood Waste Disposal (GD-PPD-075.1) provide landfill disposal standards for "pressure treated" inorganic preservatives (i.e., arsenic and chromium) and creosote (i.e., total cresol and benzo(a)pyrene) and chlorophenolic (i.e., pentachlorophenol) formulations used to preserve wood. These landfill disposal standards for treated wood waste (TWW) are used to assess the results of leachability testing to determine disposal options for any treated wood to be removed during any future renovation or demolition activities.

During the site visit, suspected "pressure treated" inorganic (i.e., CCA) preservatives appear to have been applied to the lumber that was used to construct the foundation of the Office Trailer.

4.7.5 Silica

According to the CPWR (The Center for Construction Research and Training), many common construction materials contain silica including, asphalt, brick, cement, concrete, drywall, grout, mortar, stone, sand and tile. The dust created by cutting, grinding, drilling or otherwise disturbing these materials can contain crystalline silica particles.

Based on the HBMA site visit, silica is expected to be present in asphalt roofing materials used in the construction of the site building.

5.0 QA/QC DISCUSSION

Details regarding the QC assessment of surrogate recoveries, laboratory blank and laboratory duplicate samples are presented in this section. The QA/QC results are reported on the laboratory certificates of analyses included in Appendix D.

5.1 Surrogate Recoveries

During the analysis of organic compounds losses of target analytes can occur due to matrix interference, volatilization, vessel transfer and photo degradation. Surrogate compounds that behave and are chemically similar to target analytes are used by laboratories during sample preparation and analysis procedures to assess the loss of target analytes. Surrogate recoveries are determined based on the percent recovery of the amount of surrogate spiked into each sample. The purpose of surrogate recoveries is to assess whether analyte losses have occurred as a result of laboratory errors or sample matrix effects.

The surrogate (decachlorobiphenyl) recovery for the three samples of PCBs in paint were within the laboratory's acceptable QC limits of 50-130%.

5.2 Laboratory Blank Samples

Laboratory method blank samples were analyzed for lead, mercury and PCBs. The purpose of the laboratory blank samples was to assess the quality of the laboratory results with respect to the presence/absence of instrument cross contamination at the laboratory.

Analysis of the laboratory blank samples indicated non-detectable concentrations; therefore, no evidence of cross contamination at the laboratory was identified during the laboratory analytical program.

5.3 Laboratory Duplicates

Laboratory duplicate samples were analyzed by the laboratory for lead, mercury, and PCB analysis. RPDs were calculated for these parameters by the laboratory and were within acceptable limits.

5.4 Blind Field Duplicates

The analytical data for a blind field duplicate and original paint sample analyzed for lead, mercury and PCBs were compared as relative percent differences (RPDs). A review of the blind field duplicate RPD data is summarized in Table 5-1.

Table 5-1 Laboratory Duplicate RPDs (Paint)

Blind Field Duplicate Sample ID	Original Sample ID	RPD – Lead %	RPD – PCBs %	RPD – Mercury %
CA-PS-DUP1	CA-PS-1	81	---	21

Notes:
--- denotes sample results are identical (i.e. 0.0%).

The RPD for lead in paint exceeded the acceptable limit of 35%. This is likely due to the heterogeneity of lead in paint. The RPD for PCBs and mercury were within acceptable limits.

5.5 Summary of QA/QC Discussion

Overall, based on these QC reviews, the analytical results are considered representative of the site building conditions in the immediate vicinity of the sample locations.

6.0 CONCLUSIONS

Based on observations made and information gathered during the HBMA, the following conclusions are made with respect to the potential and actual presence of hazardous building materials at the site building.

6.1 Asbestos-Containing Materials (ACMs)

Results of the asbestos sampling and analytical program revealed the following:

- Building materials containing greater than 1% asbestos by dry weight, which are considered to be ACMs are present in the form of vinyl sheet flooring in the Office Trailer.

Vinyl sheet flooring was observed throughout the Office Trailer at the time of the site visit. The condition of the flooring ranged from good to poor.

Potential ACMs were observed (or suspected to be present) and were not sampled due to the nature of the materials and/or hazards associated with sampling these materials. These materials included, but are not limited to:

- Electrical and mechanical components and insulators such as wiring and gaskets.
- Piping/pipe joint sealants.
- Incandescent light heat shields.

Other possible hidden and inaccessible ACMs have the potential to be present at the site but were not identified during the HBMA site visit. These possible ACMs could include fireproofing or insulation in wall or ceiling cavities, caulking or sealants around vent pipes or other penetrations, and underground infrastructure and piping.

6.2 Lead, Mercury and PCBs in Paint

Results of the paint sampling and analytical program revealed the following:

- Lead in Paint
  - Concentrations of lead in the three paint samples collected, including the duplicate sample, ranged from non-detect (<15 mg/kg) to 6,730 mg/kg.
  - Concentrations of lead in one sample, as well as the duplicate sample, exceeded the Federal HPA criterion of 90 mg/kg. Additionally, the concentration of lead in the duplicate paint sample (CA-PS-DUP1) exceeded the Former Federal HPA criterion of 5,000 mg/kg.
  - The concentration of lead leachate in paint sample CA-PS-DUP1 was below the applicable guideline for leachable lead in paint.
- Mercury in Paint
  - The concentrations of paint in the three paint samples analyzed, including the duplicate sample, ranged from 0.09 mg/kg to 4.39 mg/kg and therefore, were below were below the

Federal HPA criterion (10 mg/kg); therefore, these paints are not considered to be MBPs and are not likely to be leachable for mercury.

- PCBs in Paint
  - PCBs were not detected (<0.5 mg/kg) in the three paint samples, including the duplicate sample, collected from the Office Trailer.

The condition of the paint visible on interior and exterior surfaces of the site buildings varied from good condition to poor condition.

6.3 Suspected Visible Mould Growth (SVG)

Suspected water leaks were observed in Room 1 (Porch) of the Office Trailer, and SVG (assumed to be covering an area of approximately $1m^2$) was observed on painted drywall. Existing conditions in the Office Trailer (e.g., suspected water infiltration due to leaks) may potentially contribute to or enhance mould growth inside the building.

6.4 Potential Sources of ODS and Halocarbons

During the HBMA site visit, one chest freezer was noted in Room 2 (Main Room) of the Office Trailer. The manufacturers label was not accessible, it is therefore unknown what type of refrigerant the freezer contained and whether or not it would be considered and ODS.

6.5 Mercury-Containing Materials/Equipment

Mercury may be present in fluorescent light tubes/bulbs used in light fixtures on the interior of the Office Trailer. It is important to note that it was not known at the time of the site visit if some of the light fixtures observed contained LED or fluorescent light tubes, as the casings were not removed for inspection.

6.6 Treated Wood

Suspected "pressure treated" inorganic (i.e., CCA) preservatives appear to have been applied to the lumber that was used to construct the foundation of the Office Trailer.

6.7 Silica

Silica is expected to be present in asphalt roofing materials used in the construction of the site building.

7.0 RECOMMENDATIONS AND DISPOSAL OPTIONS

Based on potential/actual hazardous building materials identified at the site buildings, recommendations and disposal options, if required, are provided in Appendix F of this Report and should be reviewed in conjunction with the findings and conclusions of this HBMA.

An Asbestos Management Plan (AMP) has been prepared for this site and submitted under separate cover.

8.0 CLOSURE

This report was prepared for the exclusive use of Public Services and Procurement Canada (PSPC) and Fisheries and Oceans Canada (DFO). The findings of this report are based solely on the conditions of the site building encountered at the time of the site visit, and are limited by the availability of information at the time of the HBMA, lack of accessibility to areas within the buildings, project scope and budget. The findings of this assessment are based on the interpretation of data from a limited number of areas investigated and analytical results pertaining to specific samples. It is possible that materials exist which could not be reasonably identified within the scope of the HBMA or which were not apparent or accessible during the site visit. This Report is also subject to the further limitations contained in Appendix G.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. Should additional parties require reliance on this report, written authorization from Wood is required. With respect to third parties, Wood has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. This assessment has been carried out using commercially reasonable best efforts consistent with the level and skill ordinarily exercised by members of the profession currently practicing under similar conditions.

Except when otherwise specified, Wood disclaims any obligation to update this report for events taking place, or with respect to information that becomes available to Wood after the time during which Wood conducted the hazardous building materials assessment.

In evaluating the property, Wood has relied in good faith on information provided by other individuals noted in this report. Wood has assumed that the information provided is factual and accurate. In addition, some of the findings in this report are based upon information provided by the current owner/occupant. Wood accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

Wood makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

We trust that the information presented in this report meets your current requirements. Should you have any questions, or concerns, please do not hesitate to contact the undersigned.

Yours sincerely,

**Wood Environment & Infrastructure Solutions,
a Division of Wood Canada**

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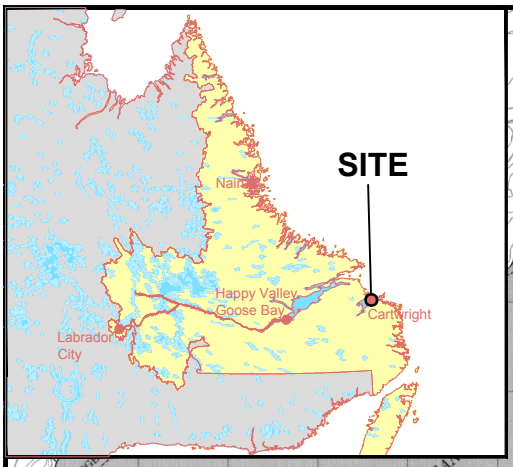
Appendix A

Figures



NOTES:

THIS FIGURE BASED ON 1:50,000 TOPOGRAPHIC MAP 13 H/11.

THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION IN SUPPORT OF THIS REPORT.

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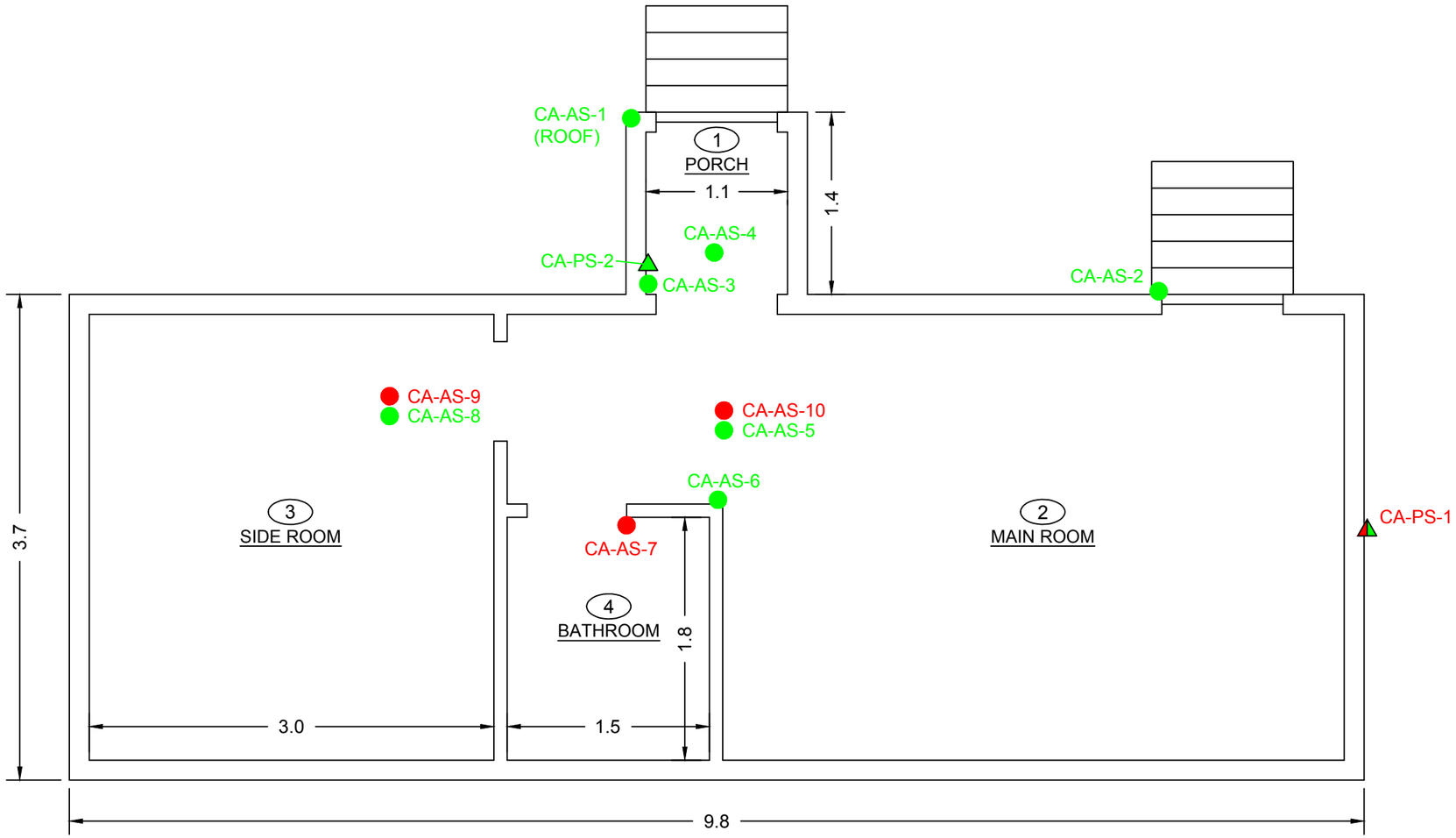
Client:
Public Services and Procurement Canada / Services publics et Approvisionnement Canada

Date: March 2019	Project: Hazardous Building Materials Assessment, Cartwright, NL		
Drawn by: T. Rideout	Title: Site Location Plan		
Approved by: A. Parsons	Scale: NTS	Project No.: TF18076811.1000	Figure No.: 1



LEGEND:

- ASBESTOS SAMPLE LOCATION - ASBESTOS NOT DETECTED
- ASBESTOS SAMPLE LOCATION - RESULTS > 1% FOR ASBESTOS
- PAINT SAMPLE LOCATION - NO CRITERIA EXCEEDANCES FOR LEAD OR MERCURY OR PCBs WHERE APPLICABLE
- PAINT SAMPLE LOCATION - RESULTS EXCEED 5000 mg/kg FOR LEAD AND NO CRITERIA EXCEEDANCES FOR MERCURY OR PCBs WHERE APPLICABLE
- (1) ASSIGNED ROOM NUMBER

Scale

0m 1m 2m 3m

NOTES:

1. DO NOT SCALE FROM FIGURE.
2. THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION OF THE STUDY AREA IN SUPPORT OF THIS REPORT.
3. ALL LOCATIONS, DIMENSIONS, AND ORIENTATIONS ARE APPROXIMATE.
4. THIS FIGURE SHOULD NOT BE USED FOR PURPOSES OTHER THAN THOSE OUTLINED ABOVE.
5.

Client: Public Services and Procurement Canada / Services publics et Approvisionnement Canada

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wood.

Drawn by: T. Rideout

Approved by: A. Parsons

Scale: As Shown

Project: Hazardous Building Materials Assessment, Cartwright, NL

Title: Sample Location Plan

Date: March 2019

Project No. TF18076811.1000

Rev. No. 0

Figure No. 2

Appendix B

Photographic Record

Photo 1 – View of Office Trailer, facing south.

Photo 2 – View of Office Trailer, facing east.

Photo 3 – View of Office Trailer, facing west.

Photo 4 – View of Office Trailer foundation.

Photo 5 – View of Room 1 (Porch).

Photo 6 – View of Room 2 (Main Room).

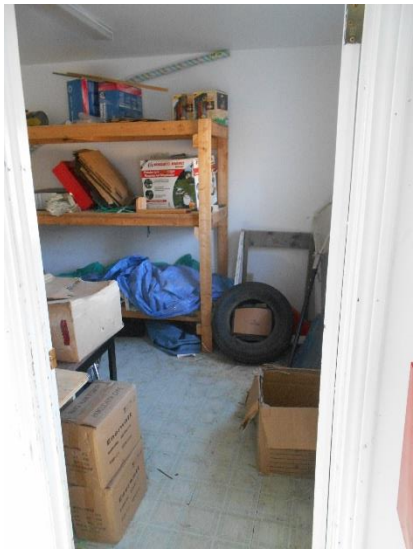

Photo 7 – View of Room 3 (Side Room).

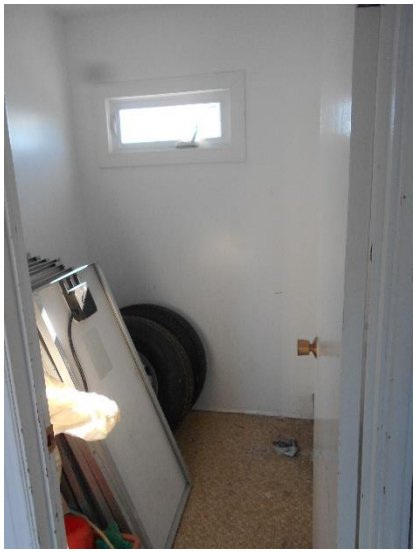

Photo 8 – View of Room 4 (Bathroom).

Photo 9 – View of bulk samples CA-AS-1 (black asphalt shingle).

Photo 10 – View of bulk sample CA-AS-2 (white caulking).

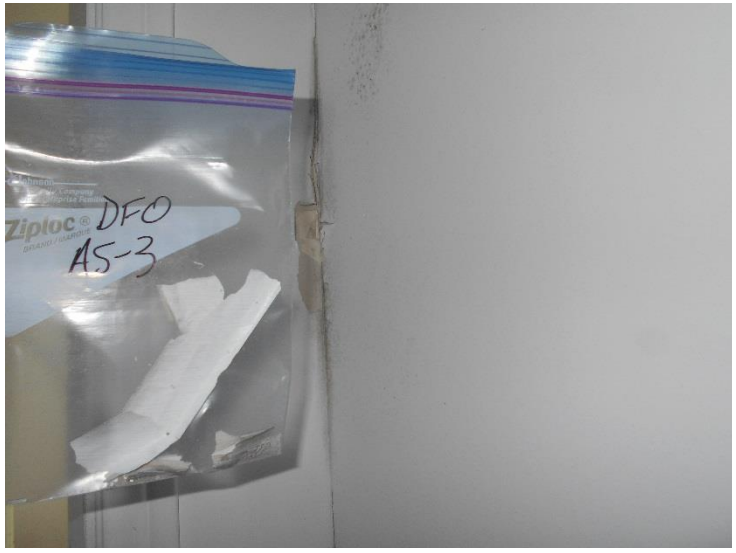

Photo 11 - View of bulk sample CA-AS-3 (drywall joint compound).

Photo 12 - View of bulk sample CA-AS-4 (beige and brown pattern vinyl sheet flooring).

Photo 13 - View of bulk sample CA-AS-5 (green patterned vinyl floor tiles with brown mastic).

Photo 14 - View of bulk sample CA-AS-6 (drywall joint compound).

Photo 15 - View of bulk sample CA-AS-7 (beige pebble pattern vinyl sheet flooring with brown mastic).

Photo 16 - View of bulk sample CA-AS-8 (green square pattern vinyl floor tile).

Photo 17 – View of bulk sample CA-AS-9 (beige pebble pattern vinyl sheet flooring with brown mastic), collected underneath bulk sample CA-AS-8.

Photo 18 - View of bulk sample CA-AS-10 (beige vinyl sheet flooring and brown mastic), collected underneath bulk sample CA-AS-5.

Photo 19 - View of paint sample CA-PS-1 (green over blue paint).

Photo 20 – View of paint sample CA-PS-2 (white paint).

Photo 21 – View of exterior of Office Trailer.


Photo 22 – View of incandescent light fixture observed in Room 1 (Porch).


Photo 23 – View of suspected water leak and SVG observed in the Office Trailer, Room 1 (Porch).


Photo 24 – View of thermostat observed in Room 2 (Main Room).

Photo 25 – View of thermostat observed in Room 2 (Main Room), similar to the one also observed in Room 4 (Bathroom).

Photo 26 – View of thermostat observed in Room 3 (Side Room).

Appendix C

Laboratory Data Tables

Table C-1: Bulk Sample Descriptions and Asbestos Analytical Results (Cartwright)

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location	Room No.	Analytical Result
CA-AS-1	Shingle	Asphalt shingle (black)	Roof	Exterior	ND
CA-AS-2	Caulking	Exterior door trim	Door Trim	Exterior	ND
CA-AS-3	DJC	DJC	Wall	Porch	ND
CA-AS-4	VSF	Vinyl sheet flooring (beige and brown pattern)	Floorr	Porch	ND
CA-AS-5-Vinyl Sheet Flooring	VSF	Vinyl floor tile (green squares with flower pattern)	Floor	Main Room	ND
CA-AS-5-Mastic	Mastic	Mastic (brown)	Floor	Main Room	ND
CA-AS-6	DJC	DJC	Wall	Main Room	ND
CA-AS-7-Vinyl Sheet Flooring	VSF	Vinyl sheet flooring (beige pebble pattern)	Floor	Bathroom	19.7% Chrysotile
CA-AS-7-Mastic	Mastic	Mastic (brown)	Floor	Bathroom	<1% Chrysotile
CA-AS-8	Vinyl Floor Tile	Vinyl floor tile (green square pattern)	Floor	Side Room	ND
CA-AS-9-Vinyl Sheet Flooring	VSF	Vinyl sheet flooring (beige pebble pattern)	Floor	Side Room	17.3% Chrysotile
CA-AS-9-Mastic	Mastic	Mastic (brown)	Floor	Side Room	<1% Chrysotile
CA-AS-10-Vinyl Sheet Flooring	VSF and Mastic	Vinyl sheet flooring (beige) with mastic (brown)	Floor	Main Room	30.8% Chrysotile

Notes:

ND: Non-detect (<1% asbestos)

VSF: Vinyl Sheet Flooring

DJC: Drywall Joint Compound

ACM: Asbestos-containing material

Shaded value >1% asbestos (dry weight) is considered to be an ACM as outlined in the NL Asbestos Abatement Regulations (Reg. 111/98)

Table C-2: Paint Sample Descriptions and Lead Analytical Results (Cartwright Field Office)

Sample ID	Colour Description	Substrate	Sample Location	Room	RDL (mg/kg)	Total Lead (mg/kg)
CA-PS-1	Green over blue	wood	trim	Exterior	<15	**2,850**
CA-PS-DUP1	Green over blue	wood	trim	Exterior	<15	**6,730**
CA-PS-2	White	wood	door trim	Porch	<15	<15

Notes

*Paint sample included substrate

Paint sample CA-PS-DUP1 is a blind field duplicate of paint sample CA-PS-1

RDL: Reportable detection limit

<X: non detect

Bold and underlined value exceeds Federal HPA criterion (90 mg/kg)

Shaded value exceeds former Federal HPA criterion (5,000 mg/kg)

Table C-3: Paint Sample Descriptions and Mercury Analytical Results (Cartwright Field Office)

Sample ID	Colour Description	Substrate	Sample Location	Room No. (Photo No.)	RDL (mg/kg)	Total Mercury (mg/kg)
CA-PS-1	Green over blue	wood	trim	Exterior	0.05	3.52
CA-PS-DUP1	Green over blue	wood	trim	Exterior	0.05	4.39
CA-PS-2	White	wood	door trim	Porch	0.05	0.09

Notes

*Paint sample included substrate

Paint sample CA-PS-DUP1 is a blind field duplicate of paint sample CA-PS-1

RDL: Reportable detection limit

<X: Not detected

CCME: Canadian Council of Ministers of the Environment

CSQG: Canadian Soil Quality Guideline

HPA: Hazardous Products Act

Bold and underlined value exceeds Federal HPA criterion (10 mg/kg)

Shaded value exceeds CCME CSQG for an industrial site (50 mg/kg)

Table C-4: Sample Descriptions and PCB Analytical Results (Cartwright Field Office)

	Paint			
Sample ID	CA-PS-1	CA-PS-DUP1	CA-PS-2	
Sample Location	trim	trim	door trim	
Colour Description	Green over blue	Green over blue	White	
Substrate	wood	wood	wood	
Room	Exterior	Exterior	Porch	**RDL (mg/kg)**
Total PCB (Calculated)	<0.5	<0.5	<0.5	0.5

Notes:

*Paint sample included substrate

RDL: Reportable detection limit

Paint sample CA-PS-DUP1 is a blind field duplicate of paint sample CA-PS-1

<X: Non-detect

CCME: Canadian Council of Ministers of the Environment

CSQG: Canadian Soil Quality Guideline

Shaded value exceeds CCME CSQG for an industrial site (33 mg/kg)

Table C-5: Paint Sample Descriptions and Lead Leachate Analytical Results (Cartwright Field Office)

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/L)	Lead Leachate (mg/L)
CA-PS-DUP1	Green over blue	Wood	Exterior	0.005	0.733

Notes:

RDL: Reportable detection limit

Shaded results indicate that lead leachate concentration is above the Provincial guidance document leachable toxic waste criterion for lead (5.0 mg/L).

Appendix D

Laboratory Certificates of Analysis

EMSL Canada Inc.

2756 Slough Street Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551900383
Customer ID: 55MEEN26
Customer PO: TF18076811
Project ID:

Attn: Andrea Parsons
Wood Env. & Infrastructure Solutions
PO Box 13216
133 Crosbie Road
Saint John's, NL A1B 4A5

Phone: (709) 722-7023
Fax: (709) 722-7353
Collected: 9/30/2018
Received: 1/14/2019
Analyzed: 1/19/2019

Proj: TF18076811.1000 / Cartwright Field Office

Summary Test Report for Asbestos Analysis via EPA 600/R-93/116

Client Sample ID: CA-AS-1 ***Lab Sample ID:*** **551900383-0001**

Sample Description: Exterior - Roof/Asphalt Shingle (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	1/19/2019	Gray/Black	0.0%	100%	None Detected	

Client Sample ID: CA-AS-2 ***Lab Sample ID:*** **551900383-0002**

Sample Description: Exterior - Door Trim/Caulking (White)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	1/19/2019	White	0.0%	100%	None Detected	

Client Sample ID: CA-AS-3 ***Lab Sample ID:*** **551900383-0003**

Sample Description: Porch - Wall/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	1/19/2019	Beige	0.0%	100.0%	None Detected	

Client Sample ID: CA-AS-4 ***Lab Sample ID:*** **551900383-0004**

Sample Description: Porch - Floor/Vinyl Sheet Flooring (Beige and Brown Pattern)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	1/19/2019	Beige	0.0%	100%	None Detected	

Client Sample ID: CA-AS-5-Vinyl Sheet Flooring ***Lab Sample ID:*** **551900383-0005**

Sample Description: Main Room - Floor/Vinyl Sheet Flooring (Green) with Mastic (Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	1/19/2019	Gray/Green	0.0%	100%	None Detected	

Client Sample ID: CA-AS-5-Mastic ***Lab Sample ID:*** **551900383-0005A**

Sample Description: Main Room - Floor/Vinyl Sheet Flooring (Green) with Mastic (Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	1/19/2019	Tan	0.0%	100.0%	None Detected	

Client Sample ID: CA-AS-6 ***Lab Sample ID:*** **551900383-0006**

Sample Description: Main Room - Wall/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	1/19/2019	Beige	0.0%	100.0%	None Detected	

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http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551900383
Customer ID: 55MEEN26
Customer PO: TF18076811
Project ID:

Summary Test Report for Asbestos Analysis via EPA 600/R-93/116

Client Sample ID: CA-AS-7-Vinyl Sheet Flooring ***Lab Sample ID:*** **551900383-0007**

Sample Description: Bathroom - Floor/Vinyl Sheet Flooring (Beige Pebble Pattern) with Mastic (Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	1/19/2019	Brown/Beige	0.0%	80.3%	**19.7% Chrysotile**	

Client Sample ID: CA-AS-7-Mastic ***Lab Sample ID:*** **551900383-0007A**

Sample Description: Bathroom - Floor/Vinyl Sheet Flooring (Beige Pebble Pattern) with Mastic (Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	1/19/2019	Beige	0.0%	100.0%	**<1% Chrysotile**	Result includes a small amount of inseparable attached material.

Client Sample ID: CA-AS-8 ***Lab Sample ID:*** **551900383-0008**

Sample Description: Sideroom - Floor/Vinyl Floor Tile (Green Square Pattern)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	1/19/2019	Black/Green	0.0%	100%	None Detected	

Client Sample ID: CA-AS-9-Vinyl Sheet Flooring ***Lab Sample ID:*** **551900383-0009**

Sample Description: Sideroom - Floor/Vinyl Sheet Flooring (Beige Pebble Pattern) with Mastic (Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	1/19/2019	Brown/Beige	0.0%	82.7%	**17.3% Chrysotile**	

Client Sample ID: CA-AS-9-Mastic ***Lab Sample ID:*** **551900383-0009A**

Sample Description: Sideroom - Floor/Vinyl Sheet Flooring (Beige Pebble Pattern) with Mastic (Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	1/19/2019	Beige	0.0%	100.0%	**<1% Chrysotile**	Result includes a small amount of inseparable attached material.

Client Sample ID: CA-AS-10-Vinyl Sheet Flooring ***Lab Sample ID:*** **551900383-0010**

Sample Description: Main Room - Floor/Vinyl Sheet Flooring (Beige) with Mastic (Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	1/19/2019	Brown	0.0%	69.2%	**30.8% Chrysotile**	

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http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551900383
Customer ID: 55MEEN26
Customer PO: TF18076811
Project ID:

Summary Test Report for Asbestos Analysis via EPA 600/R-93/116

Analyst(s):

Kira Ramphal PLM (5)
PLM Grav. Reduction (8)

Reviewed and approved by:

Matthew Davis or other approved signatory
or Other Approved Signatory

Samples analyzed by EPA 600/R-93/116 consistent with NLR 111/98. The estimated limit of detection for non-detect samples is <0.1%. Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL`s liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP or any agency of the US Government.

Samples analyzed by EMSL Canada Inc. Mississauga, ON NVLAP Lab Code 200877-0

Initial report from: 01/21/201909:17:36

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

CLIENT NAME: WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, a div. of Wood Canada Ltd.
133 CROSBIE ROAD
ST. JOHNS, NL A1B4A5
(709) 722-7023

ATTENTION TO: Andrea Parsons

PROJECT: TF18076811.1000

AGAT WORK ORDER: 19X427577

SOIL ANALYSIS REVIEWED BY: Courtney O Brien, Data Reporter, B.Eng., EIT

TRACE ORGANICS REVIEWED BY: Amy Hunter, Trace Organics Supervisor, B.Sc.

DATE REPORTED: Feb 04, 2019

PAGES (INCLUDING COVER): 9

VERSION*: 2

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

NOTES
VERSION 2:V2 supersedes V1 - additional analysis.

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

AGAT Laboratories

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Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
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Certificate of Analysis

AGAT WORK ORDER: 19X427577

PROJECT: TF18076811.1000

CLIENT NAME: WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, a div. of Wood Canada Ltd.

ATTENTION TO: Andrea Parsons

SAMPLING SITE:

SAMPLED BY:

Lead In Paint

DATE RECEIVED: 2019-01-14

DATE REPORTED: 2019-02-04

		SAMPLE DESCRIPTION:		CA-PS-1	CA-PS-2	CA-PS-DUP1
		SAMPLE TYPE:		Paint	Paint	Paint
		DATE SAMPLED:		2018-09-30	2018-09-30	2018-09-30
Parameter	Unit	G / S	RDL	9831377	9831378	9831379
Lead	mg/kg		15	2850	<15	6730
Total Sample Mass	g			0.491	0.503	0.510

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: CoBrien

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 19X427577

PROJECT: TF18076811.1000

CLIENT NAME: WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, a div. of Wood Canada Ltd.

ATTENTION TO: Andrea Parsons

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Paint

DATE RECEIVED: 2019-01-14

DATE REPORTED: 2019-02-04

SAMPLE DESCRIPTION:				**CA-PS-1**	**CA-PS-2**	**CA-PS-DUP1**
SAMPLE TYPE:				**Paint**	**Paint**	**Paint**
DATE SAMPLED:				**2018-09-30**	**2018-09-30**	**2018-09-30**
Parameter	**Unit**	**G / S**	**RDL**	**9831377**	**9831378**	**9831379**
Mercury	mg/kg		0.05	3.52	0.09	4.39

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: CoBrien

AGAT Laboratories

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TEL (902)468-8718
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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 19X427577

PROJECT: TF18076811.1000

CLIENT NAME: WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, a div. of Wood Canada Ltd.

ATTENTION TO: Andrea Parsons

SAMPLING SITE:

SAMPLED BY:

TCLP Metals - Lead

DATE RECEIVED: 2019-01-14

DATE REPORTED: 2019-02-04

		SAMPLE DESCRIPTION:		CA-PS-DUP1
		SAMPLE TYPE:		Paint
		DATE SAMPLED:		2018-09-30
Parameter	**Unit**	**G / S**	**RDL**	**9831379**
Lead Leachate	mg/L		0.005	0.733

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: CoBrien

AGAT Laboratories
11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
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FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 19X427577

PROJECT: TF18076811.1000

CLIENT NAME: WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, a div. of Wood Canada Ltd. **ATTENTION TO: Andrea Parsons**

SAMPLING SITE: **SAMPLED BY:**

Total Polychlorinated Biphenyls in Paint

DATE RECEIVED: 2019-01-14 **DATE REPORTED: 2019-02-04**

		SAMPLE DESCRIPTION:		CA-PS-1	CA-PS-2	CA-AS-2
		SAMPLE TYPE:		Paint	Paint	Paint
		DATE SAMPLED:		2018-09-30	2018-09-30	2018-09-30
Parameter	**Unit**	**G / S**	**RDL**	**9831377**	**9831378**	**9831380**
Total PCBs	mg/kg		0.5	<0.5	<0.5	<0.5
Surrogate	**Unit**	**Acceptable Limits**				
Decachlorobiphenyl	%	50-130		100	112	93

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, a div. of

AGAT WORK ORDER: 19X427577

PROJECT: TF18076811.1000

ATTENTION TO: Andrea Parsons

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Feb 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Mercury Analysis in Paint															
Mercury	1	9831378	0.06	0.09	NA	< 0.05	94%	70%	130%		70%	130%	93%	70%	130%
Lead In Paint															
Lead	1142019	9831385	< 15	< 15	0.0%	< 15	90%	70%	130%	100%	70%	130%	101%	70%	130%
TCLP Metals - Lead															
Lead Leachate	9831379	9831379	0.733	0.709	3.3%	< 0.005	109%	80%	120%	109%	80%	120%	102%	70%	130%

Certified By:

AGAT Laboratories
11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, a div. of

AGAT WORK ORDER: 19X427577

PROJECT: TF18076811.1000

ATTENTION TO: Andrea Parsons

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Feb 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Polychlorinated Biphenyls in Paint															
Total PCBs	1	9831462	< 0.5	< 0.5	NA	< 0.5	113%	60%	140%	116%	60%	130%	118%	60%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By:

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
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http://www.agatlabs.com

Method Summary

CLIENT NAME: WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, a div. of **AGAT WORK ORDER: 19X427577**

PROJECT: TF18076811.1000 **ATTENTION TO: Andrea Parsons**

SAMPLING SITE: **SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Lead	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B, SM3125, AOAC 974.02	ICP/MS
Total Sample Mass			
Mercury	INOR-121-6101 & INOR-121-6107	Based on EPA 245.5 & SM 3112B	CV/AA
Lead Leachate	MET-121-6108, MET-121-6105	EPA SW-846 6020A/SM1325 In-house leachate	ICP-MS
Trace Organics Analysis			
Total PCBs	ORG-120-5107	EPA SW-846 8082	GC/ECD
Decachlorobiphenyl	ORG-120-5106	EAP SW846 3510C/8080/8010	GC/ECD

AGAT Laboratories
Unit 122 • 11 Morris Drive
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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: N/A
Hold Time:
AGAT Job Number: 19X427577
Notes:

Report Information
Company: Wood E&IS
Contact: Andrea Parsons
Address: 133 Crosbie Road
St. John's, NL
Phone: 709-722-7023 Fax:
Client Project #: TF18076811.1000
AGAT Quotation: 16-143935
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: Andrea Parsons
Email: andrea.parsons@woodplc.com
2. Name:
Email:

Report Format
☐ Single Sample per page
☑ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required:

Invoice To Same Yes ☑ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/Credit Card#:

Regulatory Requirements (Check):
☐ List Guidelines on Report ☑ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: Lead	Other: PCBs	Hazardous (Y/N)
CA-PS-1	Sept. 30, 2018	Paint	1 bag	*Hold paint samples				☑																		☑	☑	
CA-PS-2	Sept. 30, 2018	Paint	1 bag	for possible leachate analysis*				☑																		☑	☑	
CA-PS-DUP1	Sept. 30, 2018	Paint	1 bag					☑																		☑		
CA-AS-2	Sept. 30, 2018	Caulking	1 bag																								☑	

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Andrea Parsons	Jan. 11, 2019	H MacDonald	14/01/19
Samples Relinquished By (Sign):	**Date/Time**	**Samples Received By (Sign):**	**Date/Time**
		H MacDonald	10 10

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 1 of 1
No:

Appendix E

Field Notes

DESIGN MEMORANDUM (METRIC)

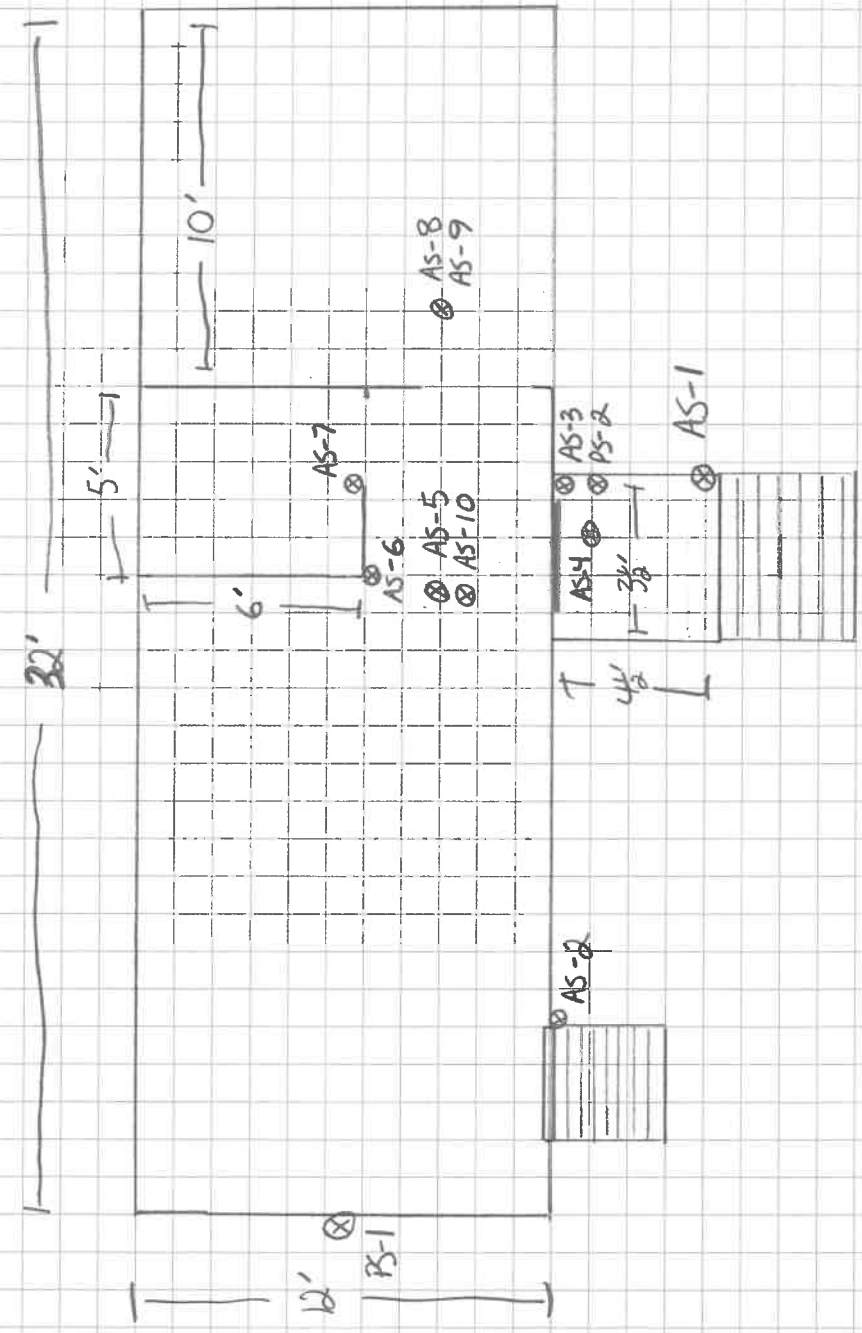
CLIENT DFO Building Cartwright NL

PROJECT TF 1807681.1000

SUBJECT

PROJECT NO.	PAGE
PREPARED BY	FILE NO.
CHECKED BY	DATE

Note: This form must be used for project calculations and original to be filed in project files.



DFO Hazmat. Carturight Sept 30/18

*Exterior.

Trailor with green wooden skirting plywood. small porch on front. white vinyl siding. green metal trim black asphalt shingles.
Small front porch. 3½ x 4½'
2 small. pressure treated wooden decks, vinyl windows. - 2 outdoor lights
AS-1 shingle. AS-2 door chaulking
~~AS-3~~ PS-1 green over blue over wood.

Interior.
small porch 3½ x 4½.
vinyl sheet flooring over plywood
beige sq flower pattern AS 4
Drywall wall & ceiling painted
white AS-3 PS 2
Wooden trim white.

- Some mould on walls ~3 sq ft.

1 incandescant light.

DFO: Carturight

MAIN Rm. 21x11'-8'

Vinyl 1x1 VFT. greenish flaney pattern.
AS-5. beige mastic
White. drywall walls white trim.
green door.
underlying flooring VSF AS-10
2 - 2x4 flourescent lights

Westcan thermostat by rec No merc.

Bath. ~5x6'-8'

VSF beige pebble pattern. mastic
AS-7.
White wall (drywall) & Trim

Electric thermostat. incan light.

DFO Cartwright

side Rm. 10x 11-8'.

VFT 1x1. AS-8 over
VSF same as bath AS-9

1 - 2x4 flourescent light.

Westcan thermostat

* NO attic access
* crawl space to small to access

Appendix F

Disposal Options and Recommendations

Appendix F: Summary of Disposal Options for Confirmed and Potential Hazardous Building Materials

Type of Hazardous Material	Regulatory Guidelines	Disposal	General Safe Handling Practices
Asbestos-Containing Materials (ACMs)	NL Asbestos Abatement Regulations (Reg. 111/98)	Asbestos-containing materials cannot be disposed of at a Construction & Demolition Site; however, these materials can be disposed of at a Regional Solid Waste Facility (landfill), provided permission is obtained from the facility.	Safe work procedures shall be established. All buildings constructed during the period when asbestos was readily used in construction (generally prior to the early 1980s) or any buildings that are suspected as having asbestos must have a written assessment and management plan (where applicable) for potential ACMs. Prior to general demolition, all ACMs must be safely removed from the building and disposed of in accordance with appropriate environmental guidelines by an asbestos abatement contractor registered with the OHS Division of Service NL. Most work involving ACMs (i.e., disturbance, removal and encapsulation) must be conducted by a contractor registered with OHS Division of Service NL. ACMs in good condition should be inspected on an annual basis. ACMs in poor condition should be removed from the building and transported off-site for proper disposal. A more detailed and destructive sampling program to further investigate concealed hazardous building materials (i.e., ACMs, etc.) is recommended prior to any demolition or extensive renovation activities. Prior to the removal and/or abatement of any identified hazardous building materials, an abatement plan including technical specifications should be designed, prepared and supervised by a qualified professional and should be undertaken by qualified trades, in accordance with applicable standards.
Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); Federal Transportation of Dangerous Goods Act (1992, c. 34); NL Dept. of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1)	Some of the paints analyzed may have had elevated lead concentrations (i.e., >5,000 mg/kg lead) but insufficient sample quantities remaining to proceed with TCLP analyses. If the paints are strongly adhered to metal substrates, these materials can be disposed of at a metal recycling or hazardous waste disposal facility, provided permission is obtained from the facility. To assess disposal options for any paints with elevated lead concentrations (>5,000 mg/kg lead) that are not adhered to metal substrates (i.e., concrete), additional samples (including the substrates) are required for TCLP analyses to determine whether or not the painted materials would be considered hazardous waste prior to removal from the site. Paints that were analyzed for lead and contained <5,000 mg/kg lead may be disposed of at a Regional Solid Waste Disposal Facility (landfill), provided permission is obtained from the landfill.	Any disturbance or removal of lead-containing painted materials that may generate lead dust or respirable aerosols must conform to the Federal and Provincial OHS Regulations. All work should be carried out by individuals wearing proper PPE. Where possible, lead containing paint finishes should be removed from metal surfaces prior to welding or cutting these materials.
Lead Leachable Paint	Federal Hazardous Products Act (R.S.1985, c. H-3) Federal Transportation of Dangerous Goods Act (1992, c. 34) NL Dept. of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1)	Lead leachable paints (i.e., >5,000 µg/L lead leachate), if removed from the site, must be disposed of at a hazardous waste treatment facility.	Flaking/deteriorated paint and paint debris/dust should be removed and treated as hazardous waste prior to renovation/demolition activities being performed.
Ozone Depleting Substances (ODS)	Federal Halocarbon Regulations (SOR/2003-289)	Materials containing ODS should be received by a contractor or facility that has the proper approvals to remove, handle and/or dispose of ODSs. The remaining materials can be disposed of at a recycling facility, provided permission is obtained from the facility.	

Appendix F: Summary of Disposal Options for Confirmed and Potential Hazardous Building Materials

Type of Hazardous Material	Regulatory Guidelines	Disposal	General Safe Handling Practices
Fire Extinguishers	Federal Hazardous Products Act (R.S.1985, c. H-3)	These materials are considered hazardous wastes and must be disposed according to NL policy and the Solid Waste Management Authority by an approved hazardous waste disposal company.	
Lead-Containing Materials/ Equipment	Federal Hazardous Products Act (R.S.1985, c. H-3)	These materials can be disposed of at a metal recycling or hazardous waste disposal facility, provided permission is obtained from the facility.	Removal of lead-containing batteries should be completed in a manner that ensures structural integrity and no loss of fluid from the batteries. Where possible, lead containing primer should be removed from metal surfaces prior to welding or cutting these materials.
Mercury-Containing Materials/ Equipment	Federal Hazardous Products Act (R.S.1985, c. H-3)	These materials (e.g., mercury-containing HID bulbs and fluorescent light tubes) can be disposed of at a recycling or hazardous waste disposal facility, provided permission is obtained from the facility	Mercury-containing HID bulbs and fluorescent light tubes should be removed intact.
PCB-Containing Materials/ Equipment	Federal Transportation of Dangerous Goods Act (1992, c. 34); PCB Regulations (SOR/2008-273) NL Dept. of Environment, 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1)	All PCB-containing materials and equipment should be handled, decontaminated, transported and disposed of as per current Federal and Provincial acts and regulations. Any PCB-containing equipment requiring removal should be transported and disposed of by a registered hazardous waste transporter in accordance with applicable regulations.	Any leaking light ballasts identified, whether PCB containing or not, should be removed and replaced to avoid potential concerns with electrical equipment in the future. All ballasts that are removed should be placed in a proper storage container(s). Leaks or stained areas should be cleaned and/or removed in accordance with applicable regulations or industry standards.
Treated Wood Materials	NL Dept. of Environment and Conservation, 2015 Guidance Document for Treated Wood Waste Disposal (GD-PPD-075.1)	These materials can be disposed of at an approved landfill facility pending Provincial regulatory and landfill operator approval.	
Silica-Containing Materials	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2016	These materials can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility (landfill).	Precautions should be taken to prevent/reduce exposure to silica dust during any disturbance/demolition of silica-containing products, such as wetting the surface of the materials to prevent dust emissions, donning respiratory protection, and cleaning tools and clothing prior to exiting work areas.
Radioactive Materials	Federal Transportation of Dangerous Goods Act (1992, c. 34)	Smoke detectors that contain low level radioactive materials must be transported, as per Federal TDG Regulations, to a licensed hazardous waste disposal facility.	Smoke detectors should be removed intact.
Mould	Mould Guidelines for the Canadian Construction Industry, Canadian Construction Industry (CCI), 2004 Mould Abatement Guidelines, Environmental Abatement Council of Ontario (EACO), 2010	All mould impacted materials may be disposed of at a Solid Waste Disposal Facility (landfill), provided permission is obtained from the landfill.	The level of work precautions presented in the Mould Abatement Guidelines depend on the extent of building materials supporting visible mould growth as well as the estimated extent of hidden mould growth supporting material. A remediation work plan should be designed and supervised by a qualified professional and should be undertaken by qualified trades, in accordance with applicable standards.
Hazardous Chemicals/ Products	Federal Hazardous Products Act (R.S.C. 1985, c. H-3); NL Dept. of Environment 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Some of these chemicals or products may be considered hazardous waste. Hazardous waste materials must be disposed of by a certified hazardous waste disposal contractor at a licensed hazardous waste disposal facility and transported under the federal Transportation of Dangerous Goods Act.	

Appendix G

Limitations

LIMITATIONS

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:

   (a) The Standard Terms and Conditions which form a part of our Contract;
   (b) The Scope of Services;
   (c) Time and Budgetary limitations as described in our Contract; and,
   (d) The Limitations stated herein.

2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.

3. The conclusions presented in this report were based, in part, on visual observations of the site and attendant structures. Our conclusions cannot and are not extended to include those portions of the site or structures which were not reasonably available, in Wood's opinion, for direct observation.

4. The environmental conditions at the site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the site with any applicable local, provincial or federal by-laws, orders-in-council, legislative enactments and regulations was not performed.

5. Where testing was performed it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, might be present on site and be revealed by different or other testing not provided for in our contract.

6. The findings within this report do not reflect potential ACMs in areas not accessed, such as remote space areas, roof areas, wall cavities and ceilings spaces. During future renovations or demolition activities and subsequent removal of interior wall and ceiling materials, the actual quantities of asbestos containing materials can be verified. Also at this time, analysis of suspect ACM materials may be required if the appearance differs from that of materials previously confirmed to contain asbestos in adjacent rooms.

7. Because of the limitations referred to above, different environmental conditions from those stated in our report might exist. Should such different conditions be encountered, Wood must be notified in order that it may determine if modifications to the conclusions in the report are necessary.

8. The utilization of Wood's services during the implementation of any remedial measures will allow Wood to observe compliance with the conclusions and recommendations contained in the report. Wood's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.

9. This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or the part, or any reliance thereon or decisions made based on any information or conclusions in the report, is the sole responsibility of such third party. Wood accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.

10. This report is not to be given over to any third party for any purpose whatsoever without the written permission of Wood.